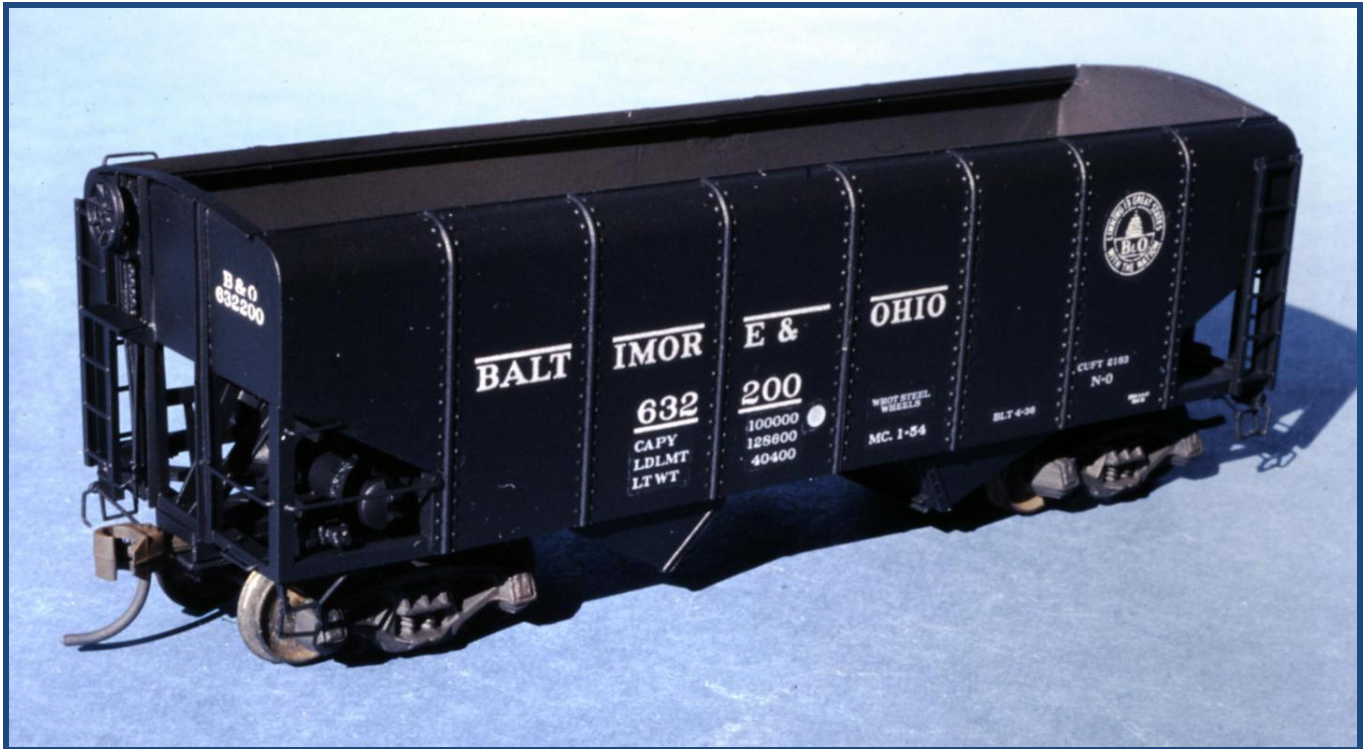


# ***THE B&O MODELER***

Volume 7, Number 2

March/April 2011



## **MODELING B&O'S CLASS N-0 WAGON TOP HOPPER THE DON ADAMS COLLECTION - SOME MODELS OF HISTORIC B&O EQUIPMENT**

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**Cover Photos – Top, B&O N-0 Hopper– Bob Chapman photo. Bottom, York with Imlay Coaches, John Teichmoeller photo.**

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## AN INVITATION TO JOIN THE B&O RAILROAD HISTORICAL SOCIETY

The Baltimore and Ohio Railroad Historical Society is an independent non-profit educational corporation. The Society's purpose is to foster interest, research, preservation, and the distribution of information concerning the B&O. Its membership is spread throughout the United States and numerous foreign countries, and its scope includes all facets of the B&O's history. Currently the Society has over 1600 registered members.

Members regularly receive a variety of publications offering news, comments, technical information, and in-depth coverage of the B&O and its related companies. Since 1979, the Society has published a quarterly magazine, *The Sentinel*, dedicated to the publication of articles and news items of historical significance. Other Society publications include monographs, calendars, equipment rosters, and reprints of original B&O source material. Their

purpose is to make otherwise unobtainable data available to the membership at reasonable cost.

Membership in the Society is a vote of support and makes all of the Society's work possible. It provides those interested in the B&O with a legitimate, respected voice in the railroad and historical communities. By working together, B&O fans are able to accomplish much more than by individual efforts. No matter how diverse your interests or how arcane your specialty, others share your fascination with America's most historic railroad. We invite your participation. Several classes of annual memberships are available, Regular memberships are only \$35.00. If you would like to join, visit the website, <http://borhs.org/Membership/membership.html> to fill out a membership application, print a copy and mail it to:

**B&ORRHS  
ATTN: Membership  
P.O. Box 24225  
Baltimore, MD 21227**

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## FROM THE EDITOR

### Fun in Modeling

I hope you read this part of the issue before the rest, but I know when I read a modeling magazine, the first thing I do is look at the pictures and then read the first article I know the least about. For most of us that will mean looking at the article about the N-0 hopper, as I am not sure if anyone is familiar with this part of the wagon top development program. I trust the fact that you are reading this article in the FIRST part of March/APRIL issue gives you additional insight into the prototype history of this article. Is that a big enough hint? Getting this article published in April was a priority and helped motivate me to undertake an ambitious schedule to get caught up. I really appreciate all the folks who stepped forward to make it possible for us to get several issues published quickly.

I hope you appreciate this article in the sense it was meant. We model things the way we want to see them and at times that can require inventing prototypes that did not exist. That's the fun we can have with a hobby. Maybe someone had this thought back in the 30's when Mr. Tatum was inventing many new types of railcars?

The fact remains that issues have been published very late over the past year and at times previously. That is entirely my fault. As I have whined about in the past, I have been in graduate school for the past five years, while being a dad, husband, and employee. I should have waited a few years before starting *The B&O Modeler*, but I thought I could do it all. I learned that I could not and have to say a tremendous thanks to all the folks who helped get each issue out. The staff of *The B&O Modeler* has changed over the years and I owe every author and every person tremendous thanks for indulging my schedule and being willing to work for each of you, the readers.

I am still looking for more articles and someone who is willing to take over the Editor duties that involve chasing down articles, hounding potential authors, laying out the magazine, and coordinating the efforts of editors who routinely contribute. I am willing to work with anyone with basic word processing and editing skills to slowly start editing (sometimes, rewriting) articles and working with authors to produce well researched articles. Again, thank you to all who have contributed to making our modeling magazine a valued resource for B&O modelers.



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## UPDATES AND ERRATA

The Ross County Historical Society has a highly detailed, historically accurate, HO scale diorama of the B&O / N&W rail yard in Chillicothe, Ohio as it appeared in the late 1920s - early 1930s. The exhibit is located in the Ross County

Heritage Center, 45 West Fifth Street, Chillicothe, Ohio 45601. They are open Tuesday through Saturday from 1-5 p.m. For more information, email: [info@rosscountyhistorical.org](mailto:info@rosscountyhistorical.org)



Tom Kuhn Photograph

### 2011 St. Louis Railroad Prototype Meet

The St. Louis RPM is back for 2011! The meet will be Friday, Aug 5th and Saturday, Aug 6th at the Gateway Convention Center, One Gateway Drive, Collinsville, IL 62234. Collinsville is 12 miles east of metro St. Louis on I-55/70. Hours: 9:00 A.M. to 10:00 P.M. both days. Admission: \$20.00 Friday & Saturday, \$15.00 Saturday only. Kids under 13 free with paid adult admission. Contact John Golden at [Golden1014@yahoo.com](mailto:Golden1014@yahoo.com) (812) 929-7181, Dan Kohlberg at [paducah@mindspring.com](mailto:paducah@mindspring.com) or Lonnie Bathurst at (217) 556-0314 for meet info. The Gateway Center Website is <http://www.gatewaycenter.com/>

The heart of this event is YOUR MODELS! Bring your models, finished or unfinished, for display. All

scales, gauges are welcome. Bring locomotives, rolling stock, structures and any other models pertaining to prototype railroading for presentation & discussion.

In 2008, 250 attendees brought over 1100 models, displayed on 50 full tables! There are no contests or awards. Our purpose is to share information, present your best modeling techniques, and meet your fellow area modelers. In addition to model displays, presentations by nationally-recognized modelers and historians are scheduled. Historical Societies and select local and national vendors will also be in attendance. A pre-RPM social/operating session is planned. An operating FreeMo layout will also be on display.

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# MODELING B&O'S CLASS N-0 WAGON TOP HOPPER

By: BOB CHAPMAN

PHOTOS BY AUTHORS UNLESS OTHERWISE SPECIFIED.



*Author's Note – When I displayed the model of B&O's Class N-0 wagon top hopper at the B&ORRHS Convention in Seymour, IN, many attendees were unaware that B&O owned such a car, and some even doubted its existence. Following is the story of the development of the Class N-0, and its remarkable service life on the B&O.*

## Circle the Wagon Tops

In 1934-35 under the leadership of car department general superintendent John J. Tatum, B&O constructed five experimental boxcars utilizing the road's newly-developed and unique wagon top carbody architecture. First out in July 1934 was Class M-15ba boxcar #279000, rebuilt from a class M-15b wood-sheathed boxcar and featuring reefer-style doors. Next, in March 1935 came M-15bb and M-15bc hopper-bottom boxcars #279998 and #279999; both featured roof hatches and were convertible to haul either bulk material or standard boxcar lading.

Also in March 1935 came Class M-49, new from the ground up, and the prototype for the 3000-member M-53 class. Following in the same month was the M-50, similar to the M-49 but with corrugated side panels to save weight.

The wagon top design offered several advantages over conventional boxcar design, including increased interior volume, lighter weight, fewer seams to leak rain, fewer parts, and lower cost.

Buoyed by the success of the wagon top architecture on boxcars, B&O extended it to other car types, including the experimental Class N-31 covered hopper #630200 in 1935 and the experimental Class I-5a caboose #2501 in November 1935. Both prototypes were developed into significant B&O classes.

## The Class N-0 is Born

Now on a roll, John Tatum eyed B&O's hopper fleet as an extension of the wagon top design. Hoppers represented nearly half of B&O's freight car fleet; if advantages were to be had from the wagon top design, the payback would be substantial.

Mt. Clare quickly adapted the hopper design using available components from the wagon top boxcar projects, and on April 1, 1935, Class N-0 wagon top hopper #632200 was placed in service. Except for ribbed sides wrapping 1'0" across each side of the top of the carbody, the car followed conventional hopper car design practice. The design offered several potential advantages, including stronger sides resistant to bowing, and reduced in-transit loss of wind-blown lading.

Had the Class N-0 arrived a few years earlier, it might have been viewed as a success, but fate intervened with the introduction of the highly successful AAR twin offset-side hopper design of 1935. In service, the AAR design proved more cost-effective, lacking the extra weight of the N-0's roll-top sides, and offering a greater capacity-to-tare ratio by placing the sides outside of the side stakes. The economics were compelling, and B&O would adopt the AAR design as its 1930s-40s standard, becoming the design's dominant owner with a fleet totaling 21,300 cars.

### **Serving in Obscurity**

Widely regarded as a successful innovator, John J. Tatum was rightfully a proud man, and the poor timing and adverse economics of the Class N-0 proved an annoying embarrassment. Always frugal, scrapping the car was an unthinkable option to Mr. Tatum.

Widely respected by B&O's operating departments, Mr. Tatum was able to arrange a service life for the car which would keep it far from the industry's eyes as well as his own.

The Class N-0 was consigned to a West Virginia B&O branch, where it could shuttle coal from a mine to a local power plant. Because of its remote operating cycle, no photos of the car have surfaced; should one surface from a reader, *B&O Modeler* will publish it in a future issue. No record has been found indicating the car's retirement, and there is speculation that the forgotten car may still be operating somewhere in West Virginia's hills.

Lest one think that the Class N-0 hopper closed the book on the wagon top design, we'll note that it was closely followed by the ill-fated wagon top flat car – but that's another story.

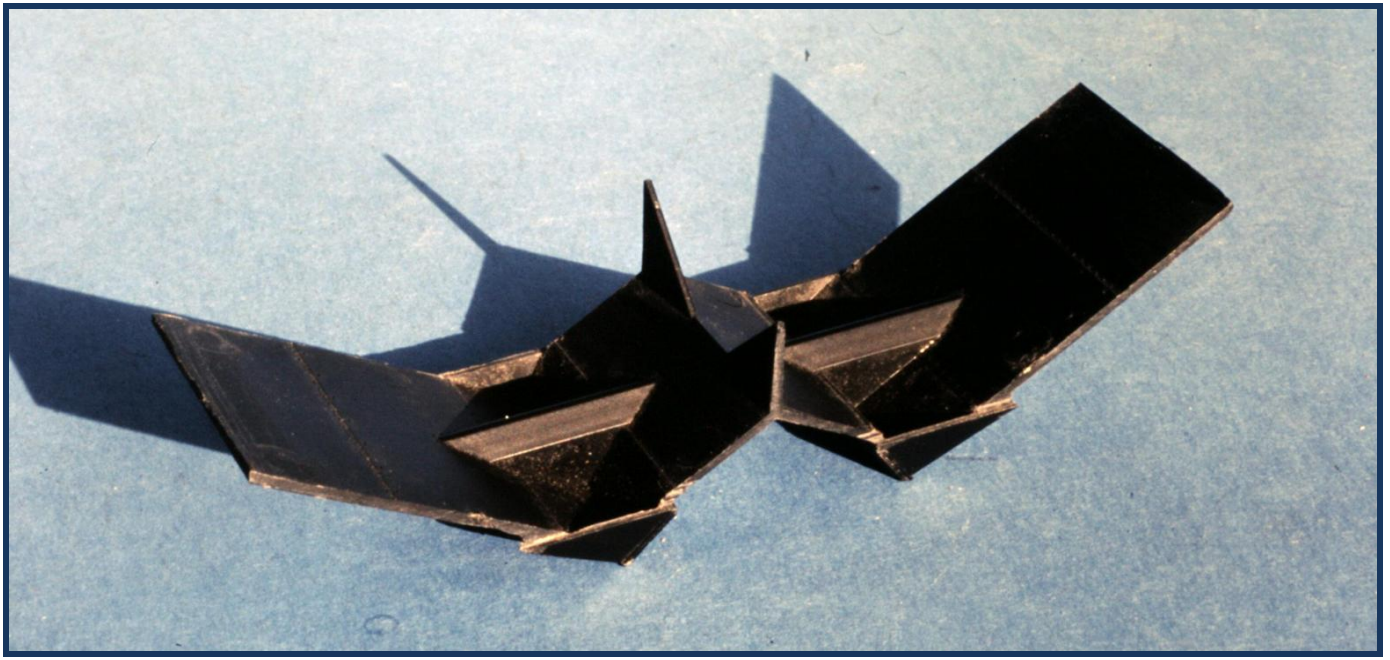
### **Modeling the Class N-0 Hopper**

For years I had wanted to model this hopper as a distinctive addition to my B&O coal train, and serendipity struck with Sunshine Models' release of their M-53 wagon top boxcar model. This was just the excuse I needed to retire my Cannonball Car Shops styrene M-53, whose too-wide carbody and oversized rivets were no longer state of the art.

Rather than throw the CCS boxcar model into the trash bin, I realized it could provide useful raw material for the Class N-0 hopper carbody. The CCS model would supply the sides and ends for the Class N-0, and an Athearn ribbed two-bay hopper carbody would supply the slope sheets and hoppers. A bit of styrene and a few detail parts would complete the project.

We'll let the photos do most of the talking to guide construction of the model.





Cut away the slope sheets and hoppers from an Athearn #5447 ribbed-side two-bay hopper carbody. For the slope sheets, be sure to cut through the sides

so that the width of the slope sheets will be wide enough to fit the CCS carbody.



Remove hardware such as ladders, running boards, and brake equipment from the CCS carbody. Cut away the center portion of the carbody containing the doors, and rejoin the body at the center of the ribs adjacent to where the door had been located. This will produce a carbody 33'6" long, a near-perfect

match to the Athearn slope sheet assembly. Fill the ladder mount holes with styrene rod or Squadron putty. Cut away the bottom of the CCS carbody to reduce its height; the height of the flat portion of the sides should be 7'4", or about 17 rivets high.

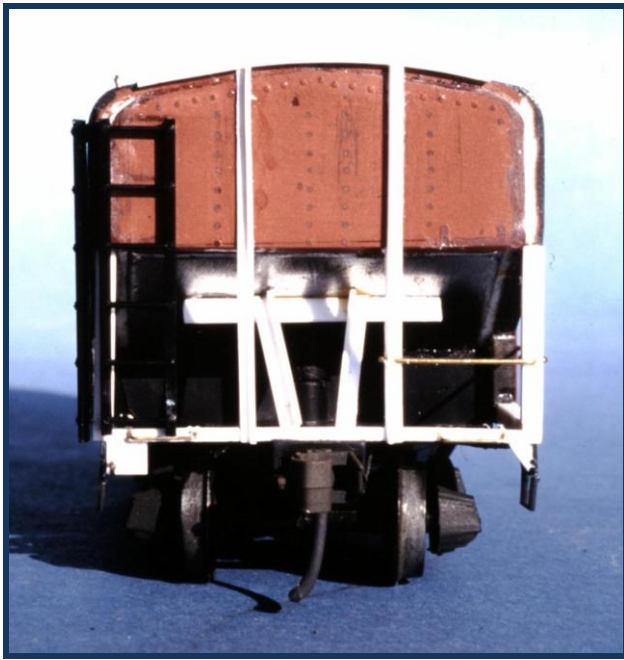


Cut away the boxcar roof, leaving a width of 1'0" of material to wrap across the top on either side. Cut the end cavity to match the bottom edge of the Athearn slope sheet.

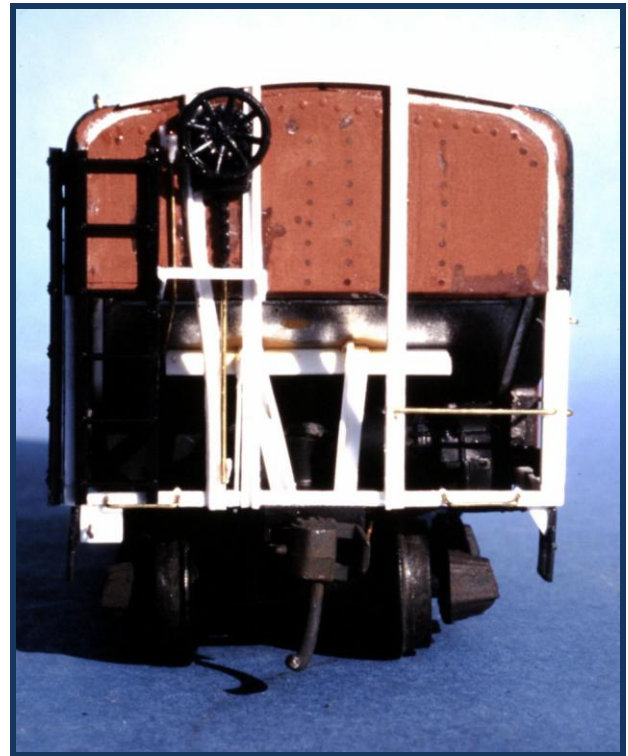
Install the Athearn slope sheet in the CCS carbody, filing and fitting as needed. Fill any gaps between the Athearn assembly and CCS carbody with styrene strips or Squadron putty.







Add end detail to the "A" (non-brakewheel) end. The lower side sills are Evergreen .060" x .060" styrene strip, the end sills are .040" x .060", and the corner posts are .060" x .060". The slope sheet braces are .060" angle stock. The vertical angles on the end were fabricated from .010" x .030" stock. The strip across the top arch of the end is .010" x .060". Ladders are Detail Associates. Grabs and uncoupling levers are .012" wire.

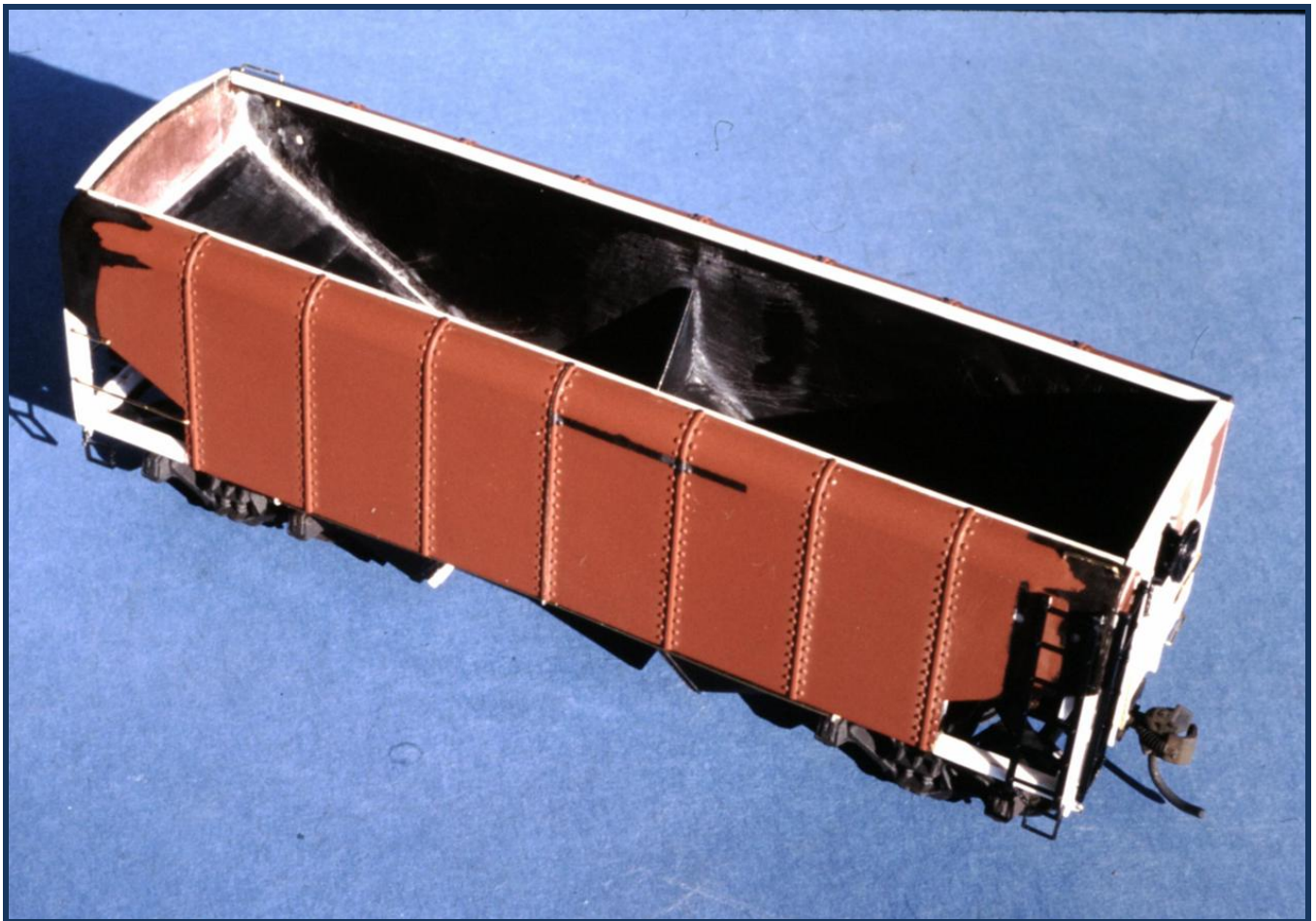
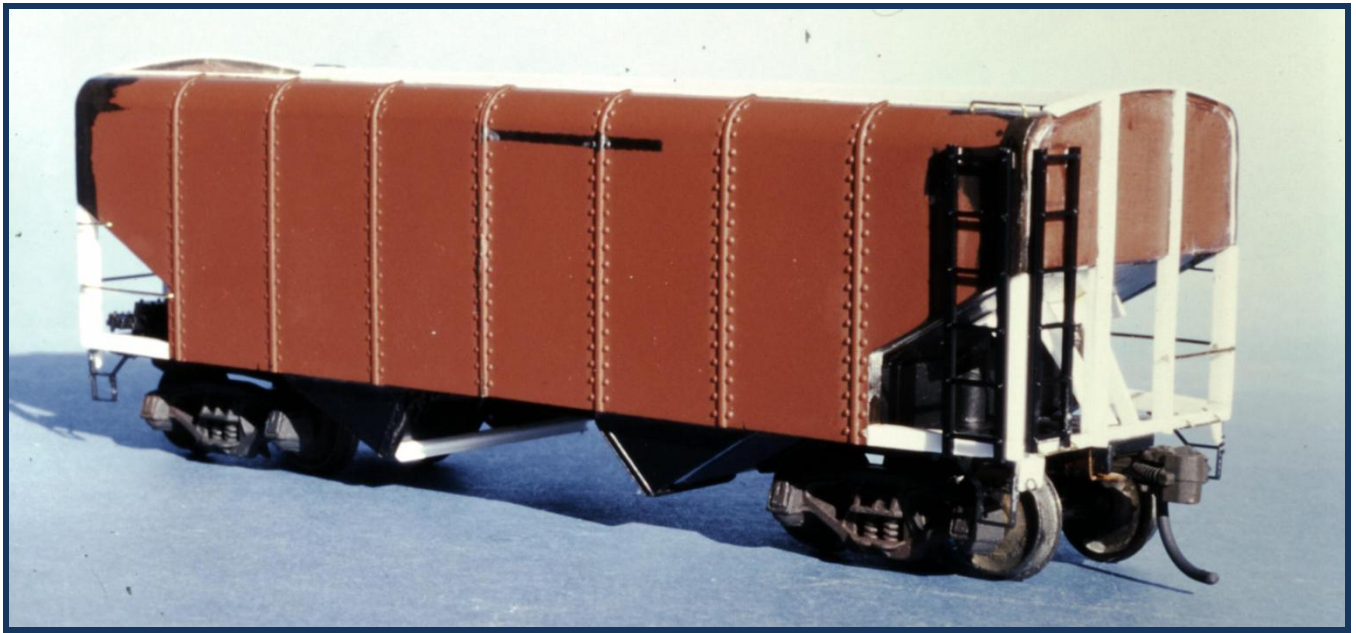


The "B" (brakewheel) end is the same as the "A" end except for the added detail of the brake system. The reservoir, valve, and cylinder are Athearn, the brake wheel is Cal-Scale, and the brake step is a scrap of styrene.



Suspend a .016" brakepipe from DA #2206 eyebolts below the left side of the car. From .010" x .030" and .010" x .040" styrene, fabricate channel beams

spanning the hopper doors. Side step are from Details Associates. Note the addition of 18" grab irons above the ladders on the sides.



Test-install the trucks and couplers. Add a bulb angle to the top of the sides from .010" x .040" styrene. Note in this view the shim strips and putty needed in an earlier step to fill the gaps between the Athearn

and CCS carbodies. Paint the car black, and decal it with Champion BRH-77 B&O hopper decals. Weather the interior, trucks, and couplers with a rust mix.





Couple your Class N-0 hopper into your B&O coal train, enjoy the interesting touch of diversity, and be

ready for questions from your visitors who may be uninformed of the Class N-0's incredible story.

### Bill of Materials

Manufacturer	Part Number	Description
Cannonball Car Shops	44387	B&O Class M-53 Boxcar
Athearn	5447	Ribbed Twin Hopper (Undecorated)
	54400	or Ribbed Twin Hopper Body
	53606	Brake Set, Wide Vision Caboose/Hopper/57
	90701	Mechanical Reefer Weight, Hopper
Cal-Scale	190-351	Ajax Style Brake Wheels
Champion Decal Company	BRH-77	B&O Hopper Car Decals
Detail Associates	229-2206	Eyebolts
	229-2504	.012" Wire
	229-6207	Freight Car Ladders (Long)
	229-6413	Freight Car Stirrups - Offset Bottom Mount -- Double 18-1/2 x 12"
Evergreen <a href="http://www.evergreenscalemodels.com/">http://www.evergreenscalemodels.com/</a>	269-101	.010" x .030" Styrene Strip
	269-102	.010" x .040" Styrene Strip
	269-103	.010" x .060" Styrene Strip
	269-143	.040" x .060" Styrene Strip
	269-153	.060" x .060" Styrene Strip
Kadee <a href="http://www.kadee.com">http://www.kadee.com</a>	380-5	#5 Couplers
Precision Scale Co., Inc. <a href="http://psc1.virtualfocus.com/">http://psc1.virtualfocus.com/</a>	585-4869	.016" Wire
Tichy <a href="http://www.tichy.com">http://www.tichy.com</a>	293-3015	18" Drop Grabs

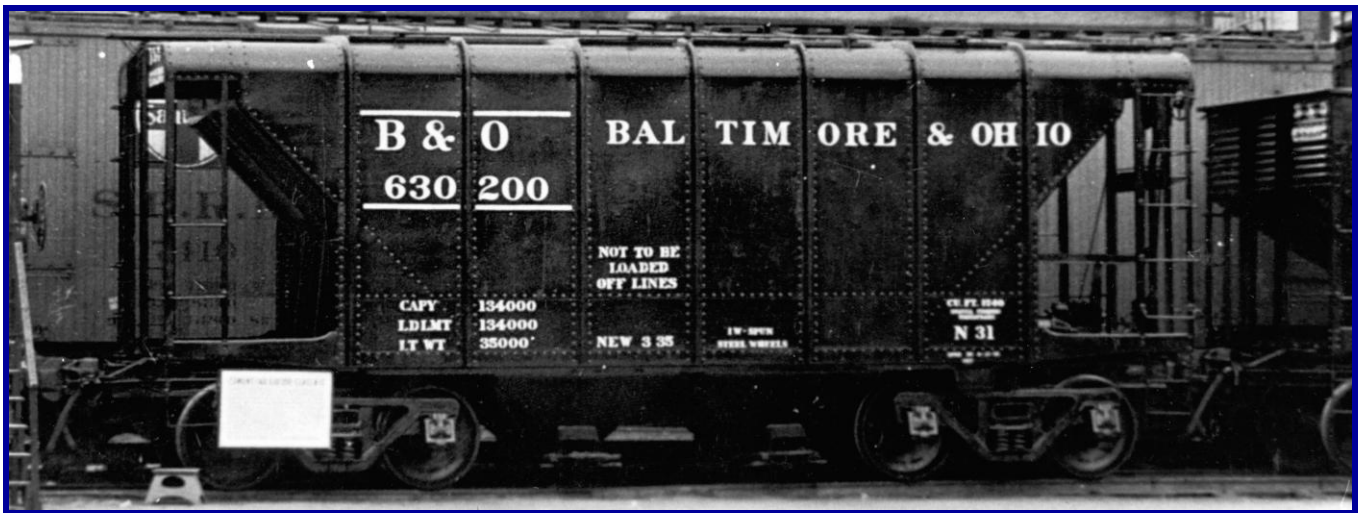


Walthers <a href="http://www.walthers.com">http://www.walthers.com</a>	933-1012 920-21258	Bettendorf Trucks 33" Flat Back Wheelsets
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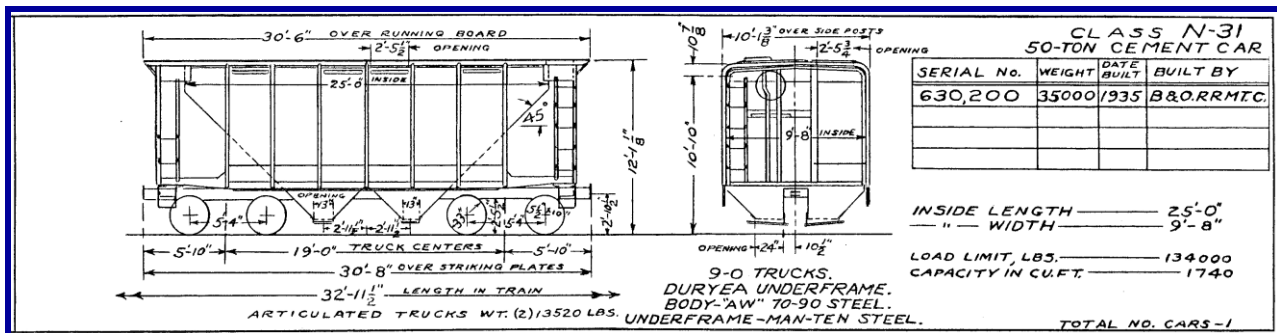
**BY: BEN HOM**

apply the “Wagon Top” design concept to covered hoppers and cabooses, and produced two experimental cars: B&O 630200, Class N-31, and B&O C-2501, Class I-5a.



## Class N-31

No injection molded styrene or resin model of this car has been issued in HO scale. In all seriousness, one starting point for a kitbash is the Cannonball Car Shops (CCS) Class M-53 used in the Class N-0 article. The July/August 1985 issue of *Model Railroading* contained an article “Baltimore & Ohio Wagontop Hopper in HO Scale” featuring a Class N-34 kitbashed from CCS parts. A similar approach can be used to model B&O 630200.



March/April 2011

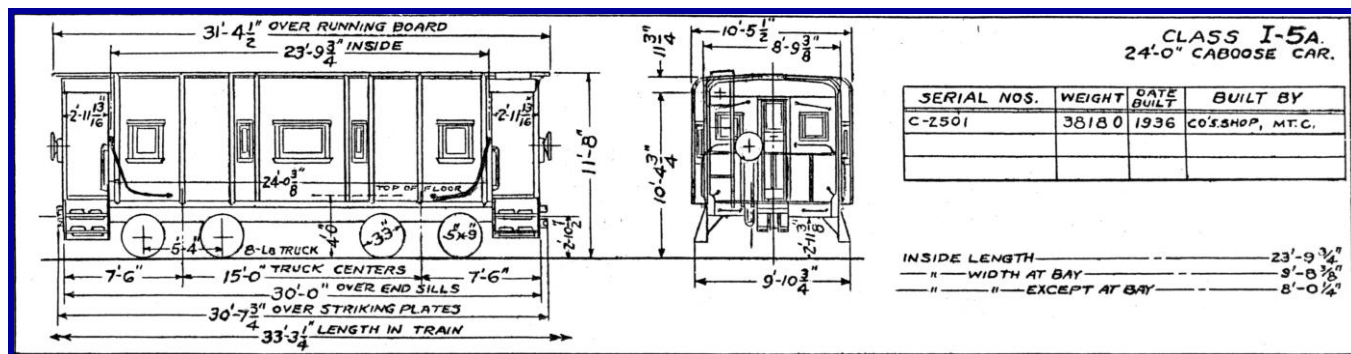
## Class I-5a

The Class I-5a caboose, B&O C-2501, was the first prototype of the 125 Class I-12 cabooses, a design instantly recognizable as a Baltimore & Ohio caboose by even the casual railfan. Built at Mt. Clare Shops in November 1935, B&O C-2501 was dismantled at Dubois Shops in June 1968.

Chris Tilley kitbashed an HO scale Class I-5a from a Pacific Mountain Scale Shops I-12 caboose kit in the November/December 2009

issue of *The B&O Modeler*. Modifications to the I-12 include shortening the wheel base, adding the “skirt” along the bottom of the carbody, revising some end details, and replacing the running board.

The long service lives of both these prototype cars and their follow-on classes are a testament to the adaptability and essential soundness of the “Wagon Top” design.



Class I-5a Clearance Diagram T-45036 Revision C dated 4-6-49 (B&ORRHS collection).



B&O C-2501, Mt. Clare Shops, November 1935 (B&ORRHS collection).



## Acknowledgements

Nick Fry, John King, Thomas Vanderlip

## References

“Baltimore & Ohio Wagontop Hopper in HO Scale”, *Model Railroading*, July/August 1985, p. 47.

*Cabooses of the B&O Railroad*, Bob Hubler, Baltimore & Ohio Railroad Historical Society, 1994.

*Freight Car Equipment 1917-1960*, Compiled by Richard K. Daniels, Baltimore & Ohio Railroad Historical Society.

“The First B&O Wagontop Caboose – I-5a C-2501 Kitbash”, Chris Tilley, *The B&O Modeler*, November/December 2009, p. 6.



B&O C-2501, c. 1952 (B&ORRHS collection).

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## THE DON ADAMS COLLECTION - SOME MODELS OF HISTORIC B&O EQUIPMENT

BY JOHN TEICHMOELLER

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



For many years, I attended the annual Railroadiana Show held the first Sunday in November at the Montgomery County Maryland Fairgrounds in Gaithersburg. My quest was for rare and out-of-print books on my “list.” About 5 years ago I stopped going because a) I had just about everything on my list and b) when a new item popped up on my list I found I was typically able to obtain it fairly quickly and easily on the worldwide network of used bookstores provided by the Internet (ABE, Alibris, Amazon, etc.) Shopping this way is also a lot easier on the feet although you don’t have a chance to run into and chat with your friends.

However, in November of 2009 I had a lot of projects to do and viewed the Gaithersburg Show as a good excuse to get away from them. So I went. This show has traditionally been billed as NOT a model show, although in recent years the promoters have tried to add models. One of the dealers I came upon, Leonard Gordy, from New York, had some cardboard trays of models that immediately caught my eye. They were finely crafted models from the “stone age” of B&O equipment. While I know only enough of this era to be dangerous, the models certainly looked like decent representations of Grasshoppers, Muddiggers, Imlay Coaches, pot hoppers, etc. Leonard explained to me that these models were the last of the collection of a chap named Donald Adams from Annapolis that Leonard was liquidating.

To give this some perspective, back in the 1990s I was an active member of the now-defunct Mt. Clare Division of the Mid-Eastern Region of the National

Model Railroad Association. The Division’s activities included the construction of a modular HO layout that was displayed at the Greenberg Train Show, an annual Flea Market at the Arbutus Town Hall, evening clinics, and tours of member’s layouts. One of the layouts I recall visiting twice was that of Don Adams. The layout, as I recall it, had trains running but minimal scenery (my memory may be faulty here). However, Don’s forte’ was scratch building equipment, especially locomotives. I do recall some of his entries in Mid-Eastern Region Convention contests, although I certainly have no specific recollections of any that garnered awards, and the last thing I would ever think of is taxing the MER’s archives for a list of Don’s models that may have placed in their contests! As far as I know, he didn’t participate in any B&ORRHS activities such as attending the occasional “local” meetings we had in Baltimore or the annual convention. I do recall several things about his modeling: First, his preferred method of locomotive boiler construction was to laminate layers of styrene over a tubular metal core. Second, I do recall several of his scratch-built models—he built a model of at least one,—and maybe more—of the Delaware & Hudson’s large boilered, high pressure locomotives, and he built one or more models of the B&O’s water tube boiler locomotives. But I have no recollection of any of the ancient B&O equipment. He may have even had this on his layout when I visited, and I was inattentive at the time. And I later found out that Don died March 14, 2007.

Leonard was only interested in selling the remaining models as a lot, and the price he quoted me was more

than I was comfortable with (plus the lot included a bunch of models I had no interest in). Thus I just chalked this off to another case where “Our Lady of the Train Show” bolstered my will power and protected me from a purchase I really didn’t need.

However, about two weeks later I was surprised to receive an e-mail from my friend Jerry Mooney from Cinnaminson, New Jersey. Jerry, it seems, had gone to the train show in Allentown, PA the week after Gaithersburg. He described in some detail the purchase of a collection of scratch-built models of ancient B&O equipment and wondered if I knew anything about it. Of course, he had purchased the Don Adams collection! I was delighted that the collection was in good hands, because Jerry is a consummate collector. I knew it wouldn’t be long before he had constructed a display case for the models. I told him what I knew about Don and asked if I could take pictures of the models. I did so en-route to the Prototype Modelers Meet in Malvern, PA at the end of March, 2010.

The following photos, then, are for your enjoyment. I had to paw through a number of resources in my library to identify the models: *Early American Steam Locomotives* by Reed Kinert, *Early American*

*Locomotives* by John H. White, Jr., and, of course, *B&O Power* by Lawrence W. Sagle. I will refer you to *B&O Power* for more historical background of the locomotives. Keep in mind, I know nothing about the construction of the models, and my observations and comments are strictly based on a quick inspection of them as I was taking the photos. I’m sure a more extensive examination of the models would result in additional observations, and I am also sure readers will inform us of any misidentification. By the way, the locomotives are motorized, and, yes, I did ask Jerry if they run. He said they do, but of course haltingly, partly because of the expected pickup problems of short wheelbase motive power, plus he indicated that they looked like they hadn’t been run in a long time and appeared to be asking for some cleaning and lubrication. As far as I know, Jerry does not plan to install DCC decoders in these!

While a comparison of the models with photos and drawings of the real things indicates that Don took some unavoidable modeling license, the models certainly convey the flavor of their prototypes. Perhaps Jerry can make it to one of our conventions one of these days with these little jewels so you can see them in person.

## The Photos







## York

The Pangborn model of this engine is in the Industrial Museum in York, PA, and I saw the operating replica in the Museum of Science & Industry in Chicago in 2008. Don has provided a more robust tender than

the operating replica is equipped with, and it is motorized with what appears to be an ancient Lindsay motor. All 4 axles of this unit are powered.



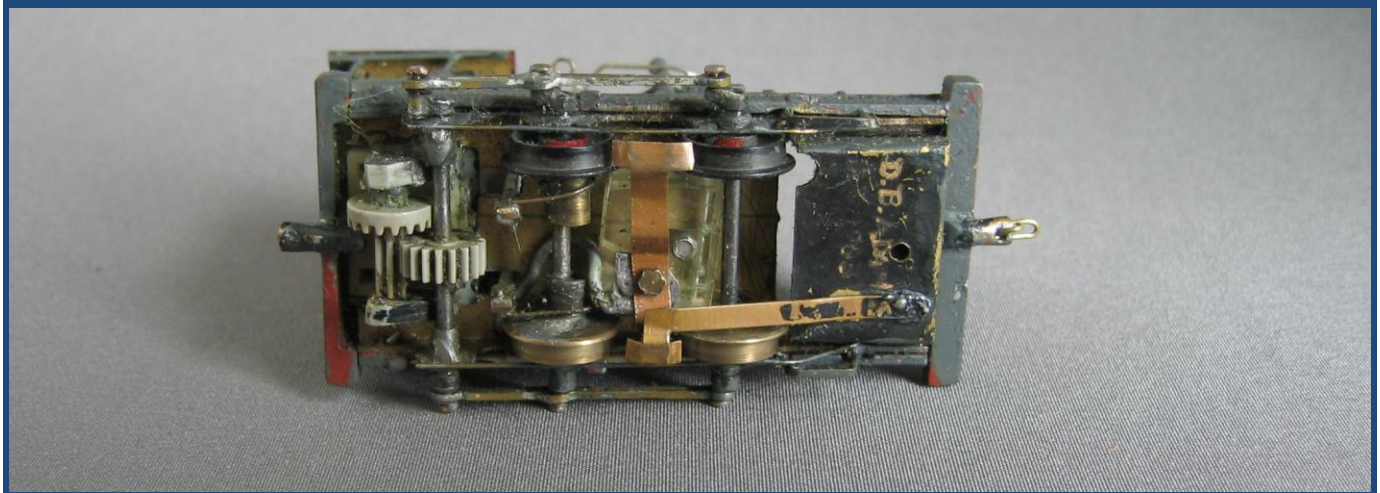


### **Imlay Coach**

The pair of these appeared to be constructed entirely of metal and is much more finely detailed than the

plastic versions that Bachman sells with their Dewitt Clinton train set.





### Grasshopper

Note the gearing to provide rocking motion to the walking beams. Jerry says this actually works. Don added a phosphor bronze contact wiper underneath to

improve reliability. Don has not named or numbered this unit but it has similar characteristics to photos of John Hancock, and the Arabian in *B&O Power*.



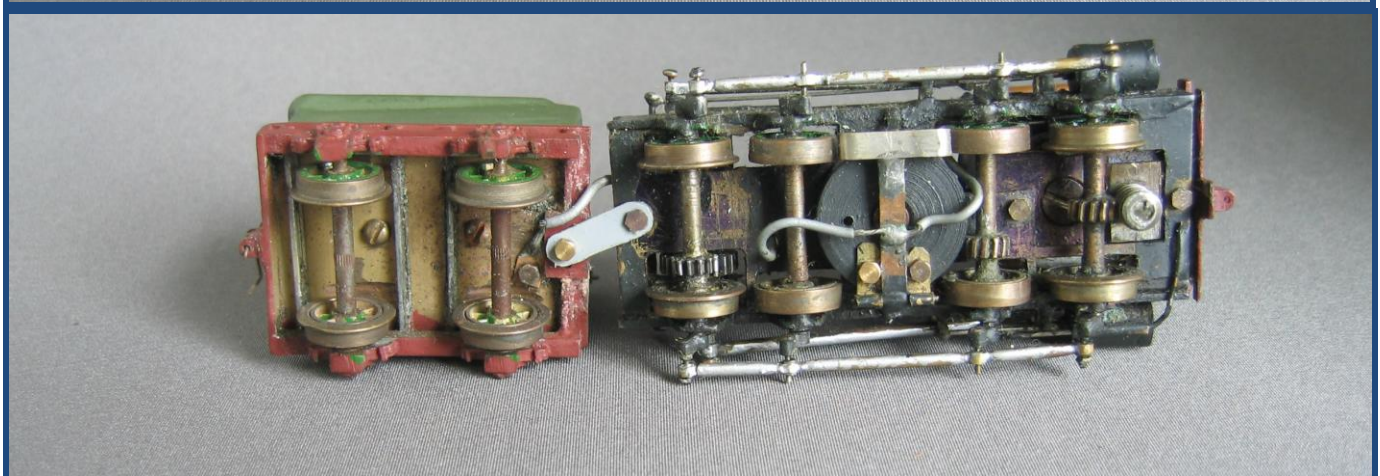
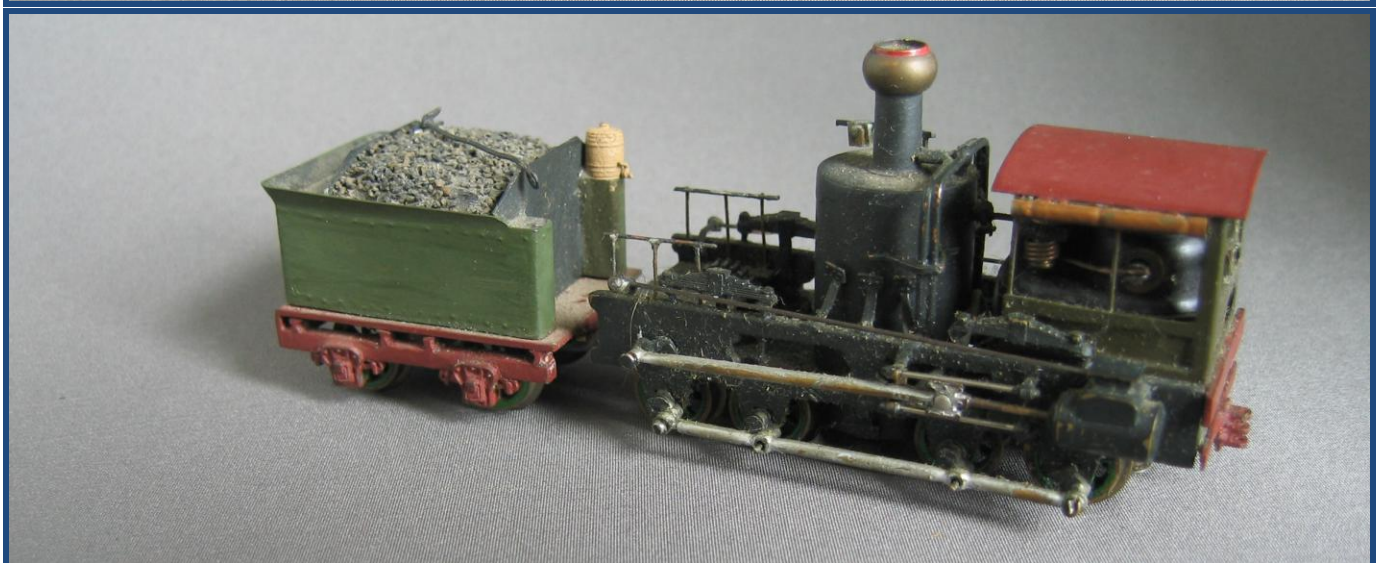
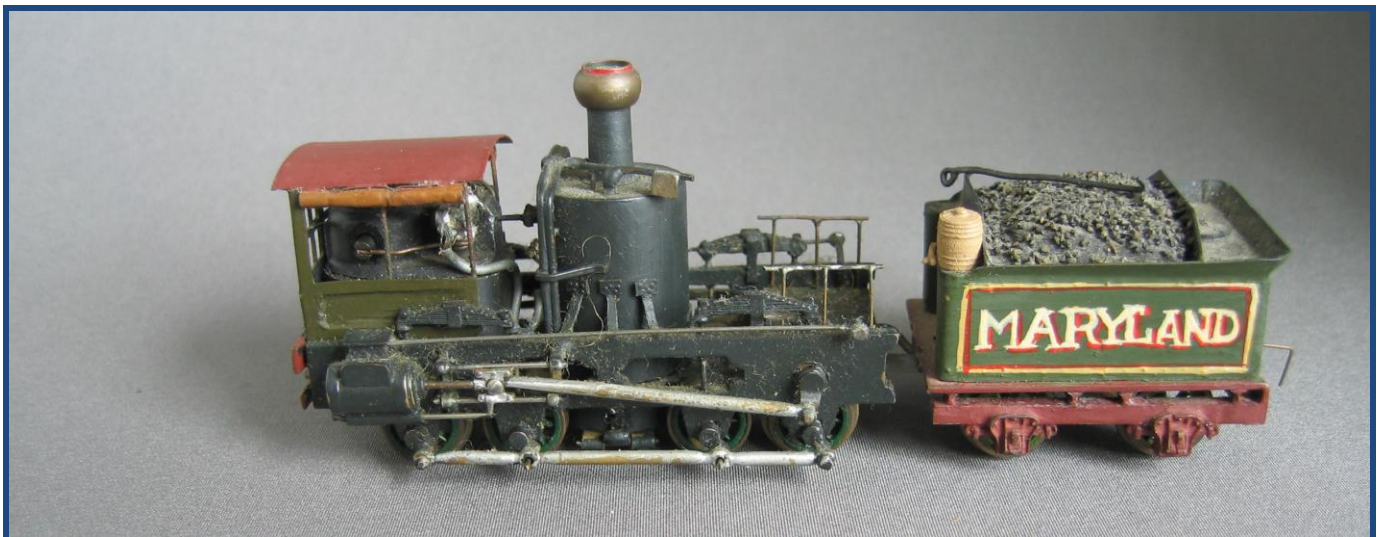


### Pot Hoppers

Commercial models of these were produced recently in 1/4" scale, but nobody has ever done them in HO. I didn't check to see if Don made operating doors, but

his scratch-built link and pin couplers and rigid beam trucks are very well done. I think the orange areas are missing paint and not rust-weathering.





### Winans Mud digger Maryland

According to *B&O Power*, the Mud diggers were Ross Winan's idea of super power from 1844; the concept was to have a lot of driving wheels with all the weight on them, as opposed to the Norris 4-2-0s.

The roster in *B&O Power* does not list a Maryland. Notice that Don has added a phosphor-bronze current pickup wiper on the locomotive and provided for current pickup from the tender.





#### **4-wheel gondolas**

These were the all-purpose freight car of the era. Strombecker produced these in 1/4" scale years ago as part of their solid-wood kit for the Lafayette set. Two cars came with the "set" and you could buy the cars separately as "two-fers." I have this train with 3 cars built-up in a Plexiglas case in my layout room.

There was no model of the Lafayette-style Norris 4-2-0 among Don's models. Bachman has produced this type engine in various forms and names for many years, so perhaps Don didn't feel it necessary to scratch-build one. Or his scratch-built version could have already have been sold.



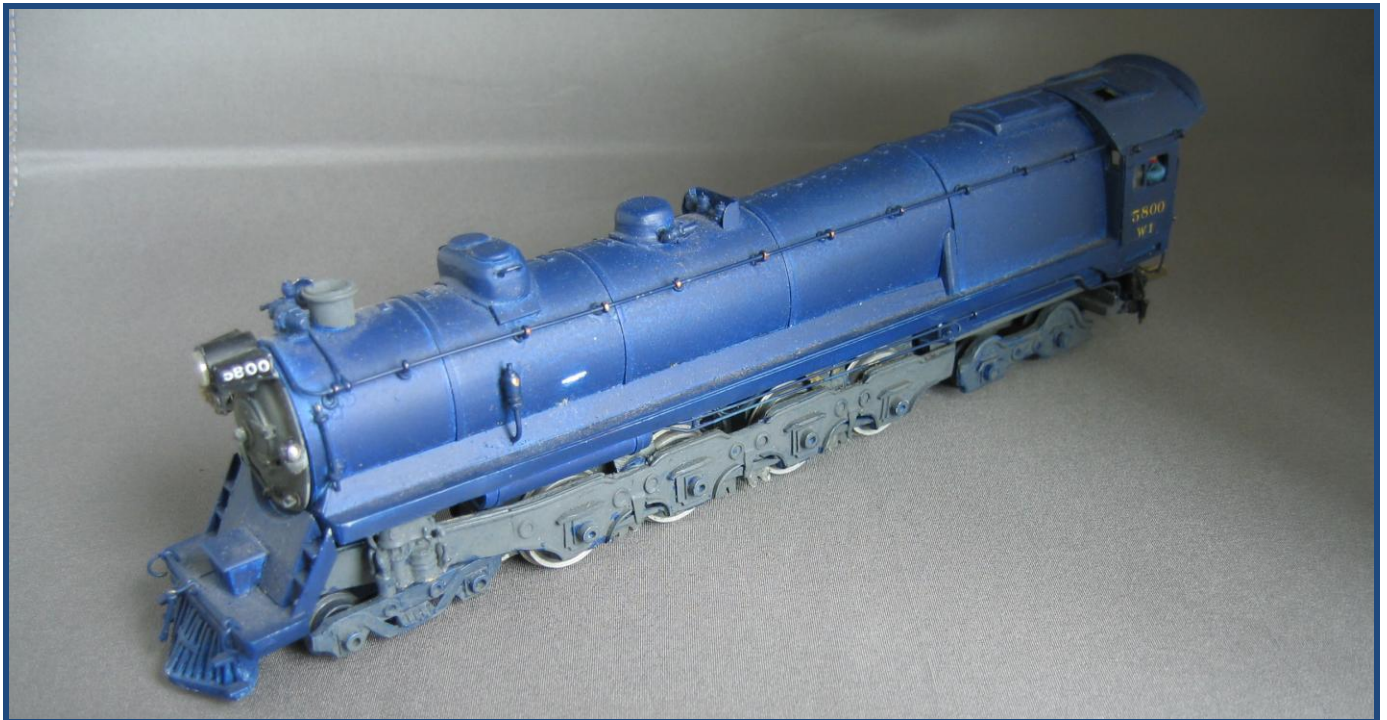


### Hayes 10-wheel Camel

*B&O Power* lists No. 72 as an 0-8-0 Mud digger type. The Hayes Camels illustrated in *B&O Power* have higher, inclined cylinders with closely-spaced lead truck axles, although the painting by Reed Kinert in *Early American Steam Locomotives* does

depict No. 217 with conventionally-spaced lead truck axles, which Don has rendered, a necessary concession to larger HO flanges. Note the motor is in the tender. I particularly like the water pump driven off the rear driver.







**Class W-1 No. 5800 4-2-2-2-2-4**

This locomotive was started by Mt. Clare but never finished. It was to have a 4-cylinder steam engine linked to each driver and is described on page 291 of *B&O Power*, with an artist's rendition of a Kuhler-

style streamlined version on page 308. Jerry indicates the mechanism is from an old Penn Line GG-1. He notes that for some strange reason, this engine also has a tender drive.

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